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INFLUENZA VACCINATION OF THE OLDER ADULT PATIENT AND DOCUMENTATION BY THE HEALTHCARE PROVIDER

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Graduate Committee Approval

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Abstract

Influenza is a respiratory virus that is spread from droplets expressed from coughing, sneezing, or talking. Illness can be mild to severe. The older adult population is particularly susceptible to complications that can arise from the influenza virus. Complications from the influenza virus can become costly. Hospitalization and mortality in the elderly population are common with complications from the influenza virus. According to the Centers for Disease Control and Prevention (CDC) (2013), influenza-related deaths between 1976 and 2006 ranged annually from 3,000 to 49,000. Research studies over the years have discovered that receiving the influenza vaccination can protect patients from complications related to the influenza virus such as hospitalizations and deaths. The purpose of this study was to determine if patients older than 65 years of age received the influenza vaccine. The researchers also reviewed patient charts for a flowsheet that the healthcare providers used to document the influenza vaccine. If the flowsheet was located, the researchers determined if it was being utilized. Nola Pender's Health Promotion Model was utilized to guide the methods of this research project. This research project posed the following questions: Did the patient receive the influenza

vaccination? Did the medical record contain a flowsheet to document vaccination records? Did the healthcare provider utilize the flowsheet? This research project examined the medical charts of 300 patients ages 65 years and older from three rural southeastern United States health clinics. The only inclusive criteria was that patients were 65 years and older. The data were collected from 300 charts of patients who met the inclusion criteria and were statistically analyzed to determine which individuals received the influenza vaccine and whether patients' charts included a flowsheet and, if so, was the flowsheet utilized. The results of the current research reinforced the need for more patient education regarding influenza vaccination in patients 65 years and older. Providers have a vast responsibility to ensure the most appropriate outcomes for patients. Influenza vaccination of the elderly has been shown to decrease complication of influenza such as hospitalization and mortality.

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CHAPTER I

Dimensions of the Problem

The influenza virus is responsible for hospitalizations and deaths in the elderly population. The Centers for Disease Control (CDC) (2012b) recommends that any person greater than 6 months old receive the influenza vaccine annually. The CDC identifies people 65 years and older as high risk for complications related to the influenza virus. Research studies over the years have discovered that receiving the influenza vaccination can protect patients from complications related to the influenza virus such as hospitalizations and deaths (CDC, 2011a).

Background Information and Statement of the Problem

The influenza virus is a respiratory illness that infects the nose, throat, and lungs. Illnesses can be mild to severe. Influenza is spread from droplets expressed from coughing, sneezing, and talking. Persons can be contagious as early as one day prior to the onset of symptoms and can remain contagious up to 7 days afterwards. The severity of the flu season is highly unpredictable and varies from year to year. Factors such as the strain of influenza virus, availability and amount of the flu vaccine, adherence to vaccination, and proper vaccine strain play a role in decreasing the severity of the flu season. Complications of the influenza virus include the following: bacterial pneumonia, ear infections, sinus infections, dehydration, and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes. Presently, the influenza vaccine is the best step in preventing influenza. Antibodies are developed roughly 2 weeks post-vaccination. The seasonal flu vaccine will protect persons against the three strains that researchers believe will be most common in a particular year (CDC, 2013).

The elderly population is at a higher risk for complications from the influenza virus due to their decreased immune system and presence of other diseases, such as hypertension and diabetes. Complications from the influenza virus can become costly. Hospitalization and mortality in the elderly population are common with complications from the influenza virus. According to the CDC (2011a), influenza-related deaths between 1976 and 2006 ranged annually from 3,000 to 49,000. For the 2011-2012 flu season, cumulative hospitalization rate per 100,000 was 30.4 for those 65 years and older (CDC, 2012a). Nichol, Nordin, Nelson, Mullooly, and Hak (2007) found that influenza vaccination was linked to a substantial decline in hospitalizations and death in the older adult population. Hottes et al. (2011) provided evidence that people 65 years and older are high risk for complications from influenza. Hottes et al. also showed a decrease in these complications with people who received the influenza vaccine.

Elderly patients are often lacking education regarding the severe complications of the virus. Educating the patients about the virus and recommending the influenza vaccination for all patients 65 years or older could help improve the vaccination rate. Researchers found a direct correlation in education and vaccine uptake. Each increase in education level increased the level of vaccination uptakes (Linn, Guralnik, & Patel, 2010).

Purpose of the Research Project

The purpose of this research was to determine if patients 65 years and older received the influenza vaccine. These researchers also reviewed patient charts for a flowsheet that the healthcare providers used to document the influenza vaccine. If the flowsheet was located, the researchers determined whether healthcare providers were utilizing the flowsheet.

Significance of the Research Project

Patients 65 years and older tend to have an age-related decline in health, are more likely to have several comorbidities, and have a decrease in immune system function (CDC, 2011a). Therefore, patients 65 years and older are at an increased risk for complications with the influenza virus. The CDC recommends that all patients over the age of 6 months receive the influenza vaccine. An increased emphasis is placed on those 65 years and older (CDC, 2011b).

The older adult population relies on nursing to provide education and proper healthcare. Nurses are called to educate and protect patients, colleagues, and communities. The influenza virus is responsible for thousands of mortalities and approximately 200,000 hospital admissions yearly (American Nurses Association, 2013). With the knowledge that older adults are more susceptible to complications from the influenza virus, it is important to place emphasis on vaccination for this age group (CDC, 2011b). Nurses are encouraged to talk with patients, families, and communities about the importance of vaccination (American Nurses Association, 2013). This research project is significant to nursing by determining if older adults receive the influenza vaccination and the vaccine was documented by the provider.

This research project is significant to research by determining if healthcare documentation records were sufficient. Also, the research determined if healthcare providers were following recommended guidelines. The data collected were significant for research by determining if the CDC recommendations are being met.

Between 1976 and 2006, the estimated deaths from influenza complications ranged from 3,000 to 49,000 people. An estimated 90% of deaths and 60% of hospitalizations related to the influenza virus occurred in patients 65 years and older

(CDC, 2012b). These percentages place a physical, emotional, and economic burden on the healthcare industry. This research project will reduce that burden by making recommendations to improve influenza documentation. By determining if CDC recommendations are being met, this project can help decrease the burden the influenza virus places on the healthcare system.

Assumptions

It is documented that those who receive vaccination for the influenza virus are not only less likely to contract the virus but are less likely to suffer from complications of the influenza (CDC, 2012b). Elderly individuals are much more susceptible to complications of the influenza. With this information, assumptions regarding the study were made:

1. Ages were documented on the patient's chart.
2. Influenza vaccination was documented on the patient's chart.
3. Providers used some organized manner to document the vaccination status of patients.

Theoretical Framework

Nola Pender's Health Promotion Model was the theory that guided this research project. Recommendations showed that vaccinating patients with a high risk for complications from the influenza virus can prevent hospitalizations and decrease mortality rates (CDC, 2012b). The Health Promotion Model provided guidance throughout the project to determine the practice of influenza vaccination in patients 65 years and older.

Pender's research focused on promoting health and preventing illness and led to the publication of the Health Promotion Model in 1982 and revised in 1996 (George, 2011). Pender created the Health Promotion Model to demonstrate the connection of

personal lifestyles and behaviors with health outcomes. Pender's Health Promotion Model states that, "the purpose of health promoting behavior is for the client to realize positive health outcomes such as improved functional ability or improved quality of life" (George, 2011, p.551). The Health Promotion Model (HPM) lists several factors that contribute to an individual's behavior toward improvement of health. The factors include importance of health, perceived control of health, definition of health, perceived health status, perceived self-efficacy, perceived benefits, perceived barriers, demographic characteristics, biological characteristics, interpersonal influences, situational influences, and behavior factors. These issues are individualized for each person (George, 2011). These aspects were studied by researching whether patients received the influenza (flu) vaccination and whether providers documented vaccination.

Many patients are guided in their health decisions based on interpersonal influences. These influences can come from family members, peers, and healthcare providers. Personal factors that play a role in a person's decision-making include biological factors (e.g., age), psychological factors (e.g., perceived health status), and sociocultural factors (e.g., education) (George, 2011). Age is a key factor in decision making and was a key population classification in the current influenza vaccination research. Research reveals that the influenza virus has proven to present a higher death rate in patients 65 years and older. Perceived health status is another component that affects the decision-making process of an individual. Ideally, healthier individuals are less likely to acquire the flu; a declined health status increases a person's risk of flu transmission (CDC, 2012b). Likewise, education influences a person's decision-making process regarding their health status. As a result, providers must explain the benefits of influenza vaccination to patients.

Research Questions

The following research questions were the focus of the research project:

1. Did the patient receive the influenza vaccination?
2. Did the medical record contain a flowsheet to document vaccination records?
3. Did the healthcare provider utilize the flowsheet?

Definition of Terms

Patient

Theoretical: "an individual waiting or under medical care and treatment" ("Patient," 2012).

Operational: Any person $\geq$ 65 years of age.

Influenza vaccination

Theoretical: "a vaccine against influenza that typically contains a mixture of strains of influenza virus cultured in chick embryos" ("Influenza vaccination," 2013).

Operational: a vaccine given to patients to help prevent the influenza virus.

Medical record

Theoretical: "a record of a patient's medical information (as medical history, care or treatments received, test results, diagnoses, and medications taken)" ("Medical record," 2013).

Operational: a chart kept at the clinic containing the patient's medical information.

Flowsheet

Theoretical: "flowchart," ("Flowsheet," 2013).

Operational: a documentation form that allows pertinent information such as immunization records to be kept on one sheet in the patient's chart.

Healthcare provider

Theoretical: "any individual, institution, or agency that provides health services to health care consumers" ("Healthcare provider," 2012).

Operational: Physicians or nurse practitioners from selected clinics that provide care to patients.

Summary

The influenza virus affects individuals throughout the world. Elderly individuals are particularly susceptible to complications from the virus resulting in increased hospitalizations and mortality. This research project reviewed charts of patients 65 years and older in three rural health clinics in the southeastern United States to determine if patients received the influenza vaccine, if the medical record contained a flowsheet for vaccination record documentation, and if healthcare providers utilized the flowsheet.

CHAPTER II

Literature Review

The influenza virus has been a cause of medical concern for several years. Yearly, influenza causes large amounts of deaths across the world. These deaths greatly affect subsets of the world population that are more vulnerable to the effects of the virus. This research project sought to determine the measures taken to protect one of these subsets—individuals aged 65 years or older against the influenza virus (CDC, 2011a). The purpose of this research was to determine if patients 65 years and older received the influenza vaccine. These researchers also reviewed patient charts for a flowsheet that the healthcare providers use to document the influenza vaccine. If the flowsheet was located, then utilization of the flowsheet was determined. With a research study of this type, it was crucial to review previous research to gain important data as well as obstacles other research studies have encountered. Review of previously conducted research in this area of study allowed the research project to determine what areas need further research and helped guide the concept of the research conducted.

The objective of this chapter was to present literature reviews that demonstrate the importance of influenza vaccination and vaccine education in the elderly population. Also, this chapter demonstrates the effect influenza vaccination in elderly patients has on decreasing hospitalization and mortality.

Conceptual Framework

Nola Pender's Health Promotion Model (HPM) was chosen as the framework for this study. Pender's theory is centered on the promotion of health and the prevention of illness (George, 2011). Pender's theory and the review of literature provided a background for this study. Two articles related to the HPM were reviewed to

demonstrate that the application of principles contained within the theory is relevant to influenza vaccination in elderly individuals.

Pender has applied her own Health Promotion Model throughout her career. Wu and Pender (2005) explored the role of the Revised Health Promotion Model (RHPM) in improving the physical activity of Taiwanese adolescents. The RHPM provides researchers with a theoretical framework that influences health-promoting behaviors. Nursing and behavioral science are the main perspectives of the model. Pender's model uses three factors that influence health-promoting behavior: individual characteristics, behavior-specific cognitions and affects, and immediate behavior contingencies. The desired outcome is for the patient to gain a health-promoting behavior. Previously, the model had been used to attempt to predict health-promoting lifestyles and exercise behavior in American adults and adolescents. However, those studies were primarily cross-sectional, casual relationships between selected variables, and the behavior could not be truly quantified. Therefore, the purpose of Wu and Pender's study was to use "perspective data to examine the relationship between demographic variables, physical-activity related cognitions, and interpersonal influences on the behavior of physical activity over a two year period" (Wu & Pender, 2005, p. 114). Individual characteristics included gender, parental education, and prior behavior. Physical activity-specific cognitions included perceived benefits of action, perceived barriers to action, and perceived self-efficacy. Also, interpersonal influences were social support, modeling, and norms. According to the RHPM, individual characteristics have a direct influence on behavior-specific cognitions and health-promoting behaviors. Wu and Pender used 892 middle-school students from Taipei, Taiwan. Results for the effects of individual characteristics on physical activity found that gender appeared to affect physical activity.

Youth with higher educated parents performed less physical activity. Interpersonal influences and physical cognition's effect on physical activity was seen in the following:

1. Social support had a direct effect on physical activity and an indirect effect through perceived self-efficacy.
2. Modeling had a direct effect on physical activity.
3. Norms had no effect.

Wu and Pender (2005) found that interventions more likely to increase physical activity are strengthening behavior-related cognitions. This study was useful in this research project as it linked interpersonal influences to future behavior.

Stark, Chase, and DeYoung (2010) used the HPM to examine the relationships between demands and health promotion of elders. The HPM was used as a framework for this research because it considered the multidimensional nature of persons and the unique environment in which each person functions. According to the HPM, health-promoting attitudes and behaviors, such as physical activity, good nutrition, healthy interpersonal relationships, stress management resources, spiritual growth, and a sense of personal health responsibility, can lead to better health outcomes while improving quality of life. Individual characteristics, such as age, gender, self-esteem, and previous behaviors, are thought to affect a person's health-promoting behaviors. Also, behavior-specific cognitions influence particular health-promoting behaviors. These behavior-specific cognitions can be modified and are highly influenced by nursing intervention. Perceived barriers include the following: time, inconvenience, difficulty of the behavior, expenses, and personal cost. These barriers can be influenced by nursing intervention. The main focus of this study was on the barrier of demands. These factors can serve as distractions or compete for the ability to focus or direct attention. Age-related changes

and new life circumstances are demands that affect older adults' health-promoting behavior. The following are potential demands that can affect elders: noise, poor lighting, weather, hearing and vision changes, physical mobility, emotions, worries, and loneliness. This descriptive correlation survey design study was undertaken to determine if demands truly influence health promotion behaviors. Stark et al.'s (2010) study consisted of 114 participants aged 65 years and older. Most participants were white, educated females. The researchers found that there was a significant negative relationship between demands and health-promoting lifestyles in elders. This finding was consistent with the HPM framework. Older groups reported more demands than younger elders. The decline in physical, social, and cognitive abilities with aging resulted in more barriers. Nursing interventions, such as monitoring for demands, managing chronic illness effectively, nutrition improvement, and other health-promoting activities, help alleviate some of these problems (Stark et al., 2010). Stark et al.'s study was beneficial to the current research project as it showed that elderly adults suffer from demands that can affect their willingness to seek health-promoting activities such as influenza vaccination.

Review of Related Research

Hottes et al. (2011) presented a quantitative cross-sectional study where people older than 65 years were at a higher risk for complications from the influenza virus. The researchers believed that people over 65 years old were at a higher risk for complications, including death, from the influenza virus. The researchers evaluated results from before, during, and after peak activity of influenza (Hottes et al., 2011).

The study by Hottes et al. (2011) was conducted over six influenza seasons from 2000 to 2006. Each influenza season cohorts of approximately 140,000 elderly people

were assembled for the study. Community dwelling adults were used for the study while adults in personal care facilities were excluded. The study was anonymous in design; therefore, no consents were needed (Hottes et al., 2011). Data sources used were the Manitoba Immunization Monitoring System (MIMS) and the Manitoba Centre for Health Policy (Hottes et al., 2011). Using these data sources, the researchers compared elderly subjects who received the influenza vaccine to those who were hospitalized for flu complications.

The examination of vaccine effectiveness in the elderly revealed that the influenza vaccine decreased the risk for serious complications from the influenza virus. The study found that vaccine coverage was higher with advancing age in elderly who (a) lived in urban areas, (b) had received prior influenza or pneumococcal immunizations, and (c) had greater than 10 medical visits the previous year (Hottes et al., 2011).

Hottes et al. (2011) provided evidence that people older than 65 years had a high risk for complications and there was a decrease in complications with people who received the influenza vaccine. The study also provided data from an extended collection period spanning multiple influenza seasons. Further research, through the current research project, will determine if providers are recommending the vaccine to the elderly population.

Nichol et al. (2007) examined the effectiveness of influenza vaccination over 10 seasons among 18 cohorts of community-dwelling elderly members of health maintenance organizations (HMOs). Data were pooled from 18 cohorts of elderly members of a United States HMO for the 1990–1991 through the 1999–2000 seasons and two other United States HMOs for the 1996–1997 through the 1999–2000 seasons. Each cohort contained data from 20,000 people per flu season. The final tally was 713,872

people per season for 10 flu seasons. The institutional research committees of the HMOs approved the study. Participants were not required to sign formal consent. The HMOs that participated in the study were Health Partners in Minnesota and Wisconsin (1990–1991 through 1999–2000); Kaiser Permanente Northwest in the Portland, Oregon, and Vancouver, Washington, area (1996–1997 through 1999–2000); and Oxford Health Plans in New York City and surrounding counties (1996–1997 through 1999–2000). The following criteria were implemented to ensure proper baseline and follow-up data and reduce survivor bias. Non-institutionalized members of the plans had to be 65 years of age or older as of October 1 to be included in that season's cohort or continuously enrolled in the plan for the preceding 12 months or alive on the first day of the influenza season, and either continuously enrolled or died during the outcome period. Data were extracted retrospectively from the HMO databases by HMO researchers. Data elements included the following: age, sex, baseline coexisting medical conditions, healthcare use during the previous 12 months, year, site, and influenza-vaccination status. The chi-square test and student's *t* test were used to compare baseline characteristics of vaccinated versus unvaccinated subjects. Outcomes between vaccinated and unvaccinated subjects after adjustment for covariates were compared using logistic regression. The probability of being vaccinated in spite of the covariates was accounted for. Demographic characteristics, coexisting medical conditions, previous use of healthcare, site, and year were also included in study analysis. Vaccine effectiveness was estimated as a percentage: (1−adjusted odds ratio) x 100. Nichol et al. (2007) used subgroup analyses to determine heterogeneity in levels of vaccine effectiveness and to divide the study population into more homogeneous strata that would prospectively reduce the effect of residual confounding or bias.

During the 10 flu seasons, 4,599 hospitalizations for pneumonia or influenza and 8,796 deaths were observed. The average rates of hospitalization for unvaccinated and vaccinated participants were 0.7% and 0.6% per season, and death rates per season were 1.6% and 1.0%. Vaccination for the influenza virus was associated on average with reductions in hospitalizations for pneumonia and influenza (vaccine effectiveness, 27%; adjusted odds ratio, 0.73; 95% confidence interval [CI] [0.68 - 0.77) and in death (vaccine effectiveness, 48%; adjusted odds ratio, 0.52; 95% CI [0.50 - 0.55]) (Nichol et al., 2007).

The study found that influenza vaccination was linked to a substantial decline in hospitalizations and death in the older adult population. The large number of subjects pooled over a substantial amount of time provides a key perspective of the vaccines' benefits. Other case control or cohort studies have found many of the same benefits. However, they were limited to one to two flu seasons. The large number also allowed subgroups to be explored.

Misclassification of vaccination status may have occurred which may be attributed to failure to record receipt of vaccine. Even if misclassification had occurred, it would have biased results toward the null hypothesis. Although covariates were adjusted, residual cofounding could still influence results. Nichol et al. (2007) recommended additional research to define benefits of influenza vaccination to the elderly, more immunologic vaccines, and new strategies to increase levels of herd immunity. Statistically, the study was beneficial as it used a large sample size and longer duration to provide a link to the benefits of influenza vaccination to older adults. In attempting further research, Nichols et al. (2007) provided a basis for proving that influenza vaccination could be beneficial to the age group of this current study.

A study by Linn et al. (2010) focused on determining the distribution of influenza vaccine coverage in the United States in the 2008 flu season. This study was a quantitative study with a cross-sectional analysis that involved observation of a representative subset using a single measurement instrument. Using data collected during the 2008 Behavioral Risk Factor Surveillance Survey, the researchers focused on influenza vaccine uptake and collected demographic information to review what inferences could be made regarding uptake and certain demographic traits (Linn et al., 2010). By using a large sample of participants, this research study provided a basis for making inferences to the elderly population of the United States of America and its holdings.

This research study focused primarily on the uptake of the influenza vaccination among people aged 50 years or older which constituted the main research question the researchers needed to provide the appropriate data. In addition to this primary question, the researchers also sought to determine if certain demographic factors, such as sex, race, education, geographic location and income level, correlated to variations in the uptake among the elderly. Researchers also looked for variations in uptake due to various categories of illnesses.

Linn et al. (2010) were attempting to find exploratory information on the subject of influenza vaccination uptake among populations aged 50 years or above. The bulk of data for the study, aside from literature reviewed for background information, came from the 2008 Behavioral Risk Factor Surveillance Survey (BRFSS). The BRFSS is a telephone-based survey conducted by the CDC that collects information on a broad variety of topics in all 50 states. This research study collected data relating to influenza vaccination uptake, basic health condition questions, and demographic data. Participants

were randomly selected using a random digit dialing tool. Participants were not mentioned by name, and no personal information was divulged. Patients' rights were not specifically addressed by the researchers; however, participation was completely voluntary and no personal information was requested. After data collection, the researchers analyzed the data using routine statistical analysis techniques (Linn et al., 2010).

The method of research for this study followed a cross-sectional analysis which allowed the researchers to gain data from a representative subset of the population using a one-time measure. Each participant was involved in a single telephone interview that covered many health-related questions and demographic information, such as age, sex, race, and geographic location.

The Linn et al. (2010) study was large in its scope and population. The population of the study consisted of all persons in the United States and its territories with telephone access. For the purpose of this study, a subset of the sample of participants aged 50 years and older was selected. The sample size of this study was 249,723 persons.

The data from the telephone interviews were quantitative in nature and statistically analyzed. No bias appeared in the sampling process of the BRFSS, and all analyses were weighted. Use of the random telephone dialer eliminated human interaction. Telephone numbers that did not produce an answer were called a total of 15 times to attempt to reach someone to participate in the study. Researchers had a median response rate of 53.3% across the study including people who were not reached after 15 callbacks (Linn et al., 2010).

Data analyses were performed on the data collected from the 2008 Behavioral Risk Factor Surveillance Survey by the CDC. For the purpose of this survey, those ages 50 to 64 years (n = 129,769) and those older than 65 years (n = 119,954) were analyzed separately. All data collected from participants aged 50 years or older were included in this study. Strength of data collected from each individual was equally weighted due to the nature of the survey conducted. Poisson regression was used to determine the probability of receiving the influenza vaccine, and data analysis was performed using Stata/SE 10.0 (Stata Corp., College State, Texas). The data presented in this study provide many medians for various group determinants including sex, race, education, income, geographic division, participant diseases, and number of diseases (Linn et al., 2010).

Overall, the study determined that 53.3% of the participants aged 50 years or older had received the influenza vaccination according to the survey. The two-age subsets differed on their vaccination uptake. Adults 65 years and older were vaccinated at a rate of 69.5% and those participants aged 50 to 64 years had an uptake of 42% (Linn et al., 2010). The study also found that race affected vaccine uptake among the sample. Individuals 65 years and older had a higher vaccine prevalence among Asian Americans and non-Hispanic whites than in the other groups. The research study also found that a direct relationship existed in education and vaccine uptake. Each increase in education levels was followed by an increase in the level of vaccination uptake. Minimal variation existed in most of the geographical areas. However, vaccination was lowest in the United States' territories, where only 31.5% of ages 65 years and older and 16% of ages 50 to 64 years received the vaccination. A gradient in vaccine coverage was seen in relation to reported conditions. By disseminating the data into various subsets by demographic and

clinical information, the study was able to find greater areas of need in their recommendations (Linn et al., 2010).

The recommendations of the authors were two-fold. Due to the racial differences in influenza vaccination uptake, Linn et al. recommended that vaccine educations programs must be culturally relevant. In addition to tailoring the education of the patient to racial makeup, Linn et al. suggested an increase in distribution of the vaccine in non-clinic settings such as pharmacies. The study also suggested that increased distribution should help in the prevention of a pandemic and allow rapid access if a pandemic is threatening the United States (Linn et al., 2010).

Linn et al.'s (2010) sampling was directly correlated to the proposed sample of the current research project that consisted of patients aged 65 years and older. Although Linn et al. (2010) studied patients from 50 years of age and above, it used two subsets which included 50 to 64 years and 65 years and older. This study used a large population and sample size. With a population of the entire United States and a sample of over 249,000 participants, the findings of this study can easily be inferred to the age group across the United States and its territories. The largest weakness of Linn et al. (2010) was that vaccination uptake may be lower in reality since the study relied on self-reported answers in lieu of medical chart review.

A study conducted by Yoo, Holland, Bhattacharya, Phelps, and Szilagyi (2010) presented a quantitative cross-sectional survival analyses study on the effects of media coverage on annual influenza vaccination coverage among elderly Medicare patients. The study was performed using data from three influenza seasons from 1999 to 2001. Yoo et al. (2010) selected community dwelling Medicare elderly population over 65 years of age for their study population. They did not include Medicare-managed care

enrollees due to the lack of documentation of vaccination dates. Elderly patients who resided in a skilled nursing facility were excluded as most facilities required vaccination of their residents. Each year approximately 22 to 23 million people participated in the study (Yoo et al., 2010).

The researchers counted the number of media coverage articles (television and newspaper) that included keywords such as influenza, flu, vaccine, or shot. The research study evaluated how many elderly received the influenza vaccination within a week after an article was published. The information was used to determine if media reports affected the Medicare population receiving the influenza vaccination. The data source used to collect this information was the Medicare Current Beneficiary Survey and associated claims data from the Centers for Medicare and Medicaid Services (2006). The results of this study determined an increase in influenza vaccination among the elderly after media reports involving information on the influenza virus and vaccination were published. The researchers referred to a national survey that found 53% of people used television as an information source and 29% used newspapers (Yoo et al., 2010).

A weakness of this study included the fact that media coverage and vaccinations could be affected by public attention to the flu epidemics (Yoo et al., 2010). This finding could make the results appear higher. Another weakness was the discrepancies between the claims data of Medicare patients receiving the vaccine and self-reported data that they received the vaccine. There was also a limitation with the use of Medicare patients. There was more than one Medicare plan, which could also have affected if someone received the vaccine. If the patients had a fee-for-service Medicare plan, they might have been less likely to get the vaccine due to the cost. With a high use of Medicare insurance

in the current research project sample, this study provided insight into the efficiency of influenza vaccination advertising campaigns.

A study by Zimmerman et al. (2009) focused on explaining how physician and practice characteristics caused differences in vaccination rates. This study included 2,021 patients aged 65 years or older from 30 doctors in 17 clinics. The research involved various assessment tools to gather the data on the overall vaccination of older adults, including influenza vaccination.

The research conducted by Zimmerman et al. (2009) was guided by specific research questions. The authors examined physician characteristics and office systems that are linked with vaccination rates among the elderly. Researchers also sought variations in vaccination levels among physicians. Research efforts explored how conditions associated with the clinical settings affected the vaccination uptake rates of the elderly in lower socioeconomic areas (Zimmerman et al., 2009).

The research group selected clinics intentionally without the use of any random selection techniques. The goal was to select clinics that serve and operate in lower income areas. Seventeen practices were used with 36 physicians participating. Next, questionnaires were completed by the physicians from each clinic. The questionnaires described current medical practice and determined barriers to organizational change to improve immunization practice. All data collected from the surveys of physicians were entered into a database system for analysis with other data sets collected. Data were collected from random medical charts within each clinic to find information regarding vaccinations. Lastly, two observers spent one day per clinic to monitor the time that each patient spent with a physician by measuring when patients entered and left the waiting room, back office area, and examination rooms. Time spent with physicians in the

examination rooms was also measured. Patients' rights were protected via an honest broker that collected data from the medical records review. Data sets were not identified when statistical analyses were performed. Also, observational visits relied on physical description of the patient and did not depend on personal identification determinants (Zimmerman et al., 2009).

The research study examined the behaviors exhibited by the physicians and looked for the correlation between those behaviors and the level of vaccination among their elderly patients. With an aim to observe and describe the focus of their research, Zimmerman et al. collected information on both major points of the research project, patient vaccination rates, and physician and clinic behaviors. Sampling for this study involved a two-step system of selection. The population for this study involved patients who were 65 years of age or older. First, clinics were intentionally selected by the researchers to begin to isolate the sample. The following were qualifying factors:

1. Patients must have been born before January 1, 1940.
2. Patients must have been living.
3. Patients must have had an office visit in the last 12 months.

Once these lists of patients were collected, researchers randomized the lists and selected the first 150 to 175 patients from the lists. The sample of patients depended on the location of the clinics which were intentionally selected. Bias may have existed from the selection process of the clinics. One example was that the study was conducted on an intentional, diverse convenience sample of a small number of practices. The sample consisted of 2,021 participants who were 65 years of age or older and under the care of 30 physicians in 17 clinic settings (Zimmerman et al., 2009).

The sample was assessed through medical records review. Physicians who oversaw groups of the sample were assessed through survey and researcher observations of the clinic timings. Hierarchical linear modeling (HLM) analyses were used to examine the following: relationships among vaccination rates, patient-level characteristics, and physician variables. After conducting HLM analyses, the study found that race and age had a correlation with influenza vaccination uptake. Variables associated with the physicians that produced the highest correlation with vaccination uptake were the use of standing orders and the average physician examination room time with patients. Zimmerman et al. (2009) concluded that only physicians who had 10 or more of the reviewed medical records would be analyzed along with the sample data using the HLM method. HLM analyses were used to evaluate all data collected to attempt to locate what physician characteristics and patient demographic information correlated to vaccine uptake in the sample.

The findings of Zimmerman et al. (2009) were that vaccination uptake varies by race and age. Furthermore, Zimmerman et al. found that vaccination rates differed significantly between various physicians. Research analyses also suggested that length of visits appeared to have an effect on the vaccination rates. Two of the strongest relationships with vaccination uptake existed between the physicians' use of standing orders and the length of time the physician spent in the room. The researchers suggested that the findings may not be representative of the entire population based on constraints of the study. Some of the limitations included intentional selection of clinics, the geographic location of the samples, and the almost homogeneous racial makeup of certain panels for sample groups. Although all variables were equally tested and

compared, minimal areas of concern arose from the data analyses (Zimmerman et al., 2009).

The study's finding supported that standing orders on vaccination and increased length of visits by the physician had the highest impact on patient vaccination uptake. The research group concedes that most physicians are strained for time; "standing orders may be the most feasible way to increase vaccination rates in these communities" (Zimmerman et al., 2009, p. 540). By giving standing orders, most healthcare providers appeared to greatly increase the rate of vaccination for their patients aged 65 years or older.

Zimmerman et al. (2009) provided several key concepts in which the current study can expand. The sample group was similar to the current study. The sample was aged 65 years of age or older and was served by clinics in areas of high poverty which are similar to the current sample group. Weaknesses included the lack of a more heterogeneous sample group and the urban setting of the study as compared to the current study's rural area. The impact of Zimmerman et al. (2009) on the current research was providing a supporting role and possibility to infer research recommendations.

Gaughran et al. (2007) reviewed if the booster vaccine for those who do not achieve seroprotection after initial vaccination could reduce hospitalization and death rates. This two-arm, prospective, randomized, observer-blinded, multicenter, parallel-group, controlled trial took place in 26 homes in the Boroughs of Lambeth, Lewishman, and Southwark, Southeast London, United Kingdom. All permanent residents who were 60 years and older who would be routinely offered the influenza vaccine were entered. Participants were excluded for the following reasons: contraindication to the influenza vaccine and current evidence of delirium. Informed consent or assent was obtained

between August and December of 2004. Consent for those without capacity to care for themselves was obtained from the resident's caregiver or care home staff. The study was approved by the local research ethics committee of the South London and Maudsley Trust and the Institute of Psychiatry.

Baseline assessment for the study included assessment of mood, cognitive function, previous pneumococcus and influenza vaccination, lifetime major mental illness, and current medications. In preparation for the study, examiners were trained in the Mini-Mental State Examination, the Cornell Scale for Depression in Dementia, and capacity assessment. Participants received intramuscular flu vaccines. Post-vaccination blood titer samples were taken 14 to 40 days later. Residents were then randomized to "no evaluation for booster" control group (vaccinated and serastored) or a "booster evaluation" group (vaccinated and serologically evaluated). The residents were randomized to these groups at a 1:1 ratio by the Mental Health and Neuroscience Clinical Trials Unit based at the Industry of Psychiatry. Also, allocation was stratified according to center, age, and ethnicity by the Mental Health and Neuroscience Clinical Trials Unit, King's College of London to ensure confidentiality. Control group members received vaccination and no booster. Members of the booster evaluation group were offered a booster dose if they did not achieve seroprotection (HI antibody titers of 40 or more) following the initial vaccination. The outcomes and measures were defined before examination of data. Primary outcomes were hospitalization, and secondary outcomes were death, antibiotic use, seroprotection, and geometric mean antibody titers. The blinded trial nurse went to each home on a weekly basis to observe for these outcomes. The other researchers were aware of which participants required boosters, but were blinded to which group a participant belonged. To ensure participant safety, homes were

contacted 3 days after vaccination to account for any adverse reactions. Differences of hospitalization over the winter after vaccination were analyzed using a chi-square test with a two-sided 5% significance level. Hospitalizations were analyzed using logistical regression, adjusted for care home by including a random intercept for care home, and adjusted for age and ethnicity by including them as fixed covariates (Gaughran et al., 2007).

Results of the study found that 60% of the control group and 41% of the booster evaluation group were responsive to initial vaccination. When indicated, booster vaccination increased the booster evaluation group's responsiveness to 66%. Treatment groups did not vary in the intention-to-treat analysis (hospitalization OR = 1.02, 95% CI [0.55 - 1.87]) (Gaughran et al., 2007). The study found no evidence that assessing seroprotection and administering a booster were more effective in reducing adverse effects of the influenza virus in the elderly. Though an increase (41% to 66%) was noted after the booster, the control group achieved 60% seroprotection after initial dosing. The advantage of vaccination in reducing morbidity and mortality is linked to vaccination prior to an epidemic and matching of the vaccine strain to the circulating strain (Gaughran et al., 2007).

Gaughran et al. (2007) was beneficial to influenza vaccine research as it showed that initial vaccination is as effective as booster vaccination. However, limitations to the study did impede its full capability. It was only conducted through one flu season. Also, the study ended with a small sample size of only 277 residents. Difficulty attaining assent and time constraints resulted in the small sample size. The result was that the study used healthier adults who were able to give consent which could have resulted in higher seroprotection rates for healthier participants. Sixty percent of participants in the

booster group were not able to receive the booster in a timely manner which could have construed results. Recommendations for future studies would be to contact participants in the spring to allow for a longer time period. Also, recruitment should have taken place over a year to maximize the chance of getting a season with circulating influenza.

Woods et al. (2009) conducted a study to assess how cardiovascular exercise can affect the efficiency of the influenza vaccine in adults with a limited exercise regimen. This quantitative study was a randomized parallel-arm 10-month exercise trial. The study consisted of a cardiovascular exercise group and a flexibility and balance group. Researchers hypothesized that the cardiovascular group would exhibit better vaccination response than the flexibility group (Woods et al., 2009). The study took place over 3 years with approximately 50 participants each year. The study was reviewed and approved by the University of Illinois institutional review board. Written consent was obtained from the participants. Participants were independently living healthy adults between the ages of 60 and 83 years and were recruited by local media, health facilities, and community centers. Inclusion criteria included the following: ability to participate in an exercise program, medical clearance from personal physician, nonsmoker, BMI of 22 to 38, currently not on a weight reduction program, and a sedentary lifestyle. Participants could be excluded for the following: history of cancer, current use of medications that interfere with immune measures, uncontrolled diabetes mellitus, clinical depression, systemic reactions to vaccines, impaired cognitive function, abnormal complete blood cell count or comprehensive metabolic panel, and alcohol or drug abuse. Subjects also underwent physician-monitored physical exams throughout the course. Factors such as age, diabetes, and medications can influence responses. Thus, the modified baseline-adaptive randomization scheme of Begg and Igliwicz was used to ensure randomization.

Also, samples were coded to blind researchers to sample identity, and investigators were blinded to group assignments (Woods et al., 2009).

The cardiovascular group conducted supervised sessions 3 times per week. The sessions increased from 10 to 15 minutes to approximately 45 to 60 minutes by the fourth month and consisted of exercise (walking, cycling, elliptical, and stair climbs). The flexibility group consisted of supervised sessions 2 times per week lasting 75 minutes per session. Sessions included large muscle group stretching and balance exercises using low-level resistance devices. From October 2003 to October 2005, 4 months after interventions began, participants received the trivalent Fluzon (Aventis Pasteur, Swiftwater, PA) influenza vaccine in a volume of 0.5 mL using the CDC recommendations. Blood samples were taken before the vaccination and at 3, 6, and 24 weeks after the vaccine. Variables, such as maximal oxygen consumption, body composition, dietary assessment, vaccination the previous year, respiratory tract illness, and adverse events, were examined. Statistical analysis was performed using chi-square analysis and independent *t* test to examine group differences in categorical and continuous variables. HI antibody and seroprotection response data were analyzed using a treatment (Cardio or Flex) x time (pre, 3, 6, and 24 weeks post-vaccine) repeated-measure analysis variance. Statistical significance was determined at $p \leq .05$. Bonferroni post-hoc multiple comparisons were used to determine group differences. Also, Greenhouse-Geisser adjustment in degrees of freedom was made if the Maulchy test of sphericity was significant.

The study consisted of 144 randomized subjects. Of those, 55 reported receiving the influenza vaccine the previous year. No significance was found when HI titers were compared across each type and variant. Results of the study were that the cardiovascular

exercise intervention did increase seroprotection 24 weeks after vaccination (HI $\geq$ 40). The data supported the study's hypothesis that regular cardiovascular exercise improves influenza vaccine responses (Woods et al., 2009).

A weakness was that only humoral response to vaccination was researched. Developing research suggested that protection was influenced by vaccine-induced cell-mediated response. Woods et al. (2009) recommended that future studies should be undertaken to assess antibody and cell-mediated immune response to vaccination and to examine whether exercising older adults have more favorable outcomes if infected with the influenza virus.

Statistically, Woods et al. (2009) was beneficial because it provided a link between cardiovascular exercise and improved antibody responses in older adults. This study was used in the current research project of influenza vaccination for older adults because the study showed a key link to the benefit of preventive health and possible cost-saving measures.

Summary

An essential part of any research project is a comprehensive review of literature on the subject that allows the research group to be aware of relevant existing research and literature. Through literary reviews, the current researchers focused on assessing whether or not the influenza vaccination is being recommended by clinicians to patients 65 years and older and the vaccination uptake. With the concept-based framework, the current researchers found that the Health Promotion Model was the most beneficial to incorporate into the research design. The findings of related research review identified that optimal vaccination uptake still does not exist among the population of the current study. Therefore, the purpose of the research project appeared to be warranted.

CHAPTER III

Methodology

The influenza virus is a respiratory illness that infects the nose, throat, and lungs. Illnesses can be mild to severe. Influenza is spread from droplets expressed from coughing, sneezing, and talking. The severity of the flu season is highly unpredictable and varies from year to year. Factors such as the strain of influenza virus, the availability and amount of available flu vaccine, the adherence to vaccination, and the proper vaccine strains play a role in decreasing the severity of the flu season. Presently, the influenza vaccine is the best step in preventing influenza. Antibodies are developed roughly 2 weeks post vaccination. The seasonal flu vaccine will protect persons against the three strain researchers believe will be most common in a particular year (CDC, 2013).

The influenza virus is responsible for hospitalizations and deaths in the elderly population. The CDC (2012b) recommends that any person older than 6 months receive the influenza vaccine annually.

Adults ages 65 years and older are at greater risk for complications from the influenza virus than young, healthy adults. The best known way of preventing contraction of the influenza virus is the influenza vaccine. Research studies over the years have discovered that receiving the influenza vaccination can protect patients from complications related to the influenza virus such as hospitalizations and deaths (CDC, 2011a).

The purpose of the current research was to determine if patients over 65 years of age receive the influenza vaccine. Also, patient charts were reviewed for a flowsheet that the healthcare providers use to document the influenza vaccine. If the flowsheet was located, the researchers determined if it was being utilized. The researchers collected

data through chart reviews of adults' age 65 years and over, analyzed the data collected, and reported the findings. This chapter defines the setting, sample, and the implementation of the project.

Setting for the Research Project

This research study utilized a retrospective medical records review to determine if patients 65 years and older received the influenza vaccine. Also, patient charts were reviewed for a flowsheet that the healthcare providers use to document the influenza vaccine. If the flowsheet was located, the researchers had to determine if it was being utilized. Data were collected using chart reviews of patients 65 years and older. Results were organized using a descriptive, quantitative design.

The setting for this project was three rural health clinics in the southeastern United States. All clinics were family medical clinics. Researchers investigated and compared medical records from the three clinics. The first clinic has one family nurse practitioner and 4 exam rooms. The clinic has access to lab and radiology services of a community hospital. The clinic is open Monday through Wednesday and Friday. The clinic averages 30 patients each day. Services include wellness checks as well as preventive, chronic, and acute care for patients from all age groups. The clinic accepts Medicare, Medicaid, private insurance and self-pay patients. The second clinic has one physician and one family nurse practitioner with 10 exam rooms, an in-house lab, and access to lab and radiology services. The clinic is open Monday through Friday and serves an average of 45 patients each day. Services include wellness checks and preventive, chronic, and acute care for patients of all age groups. The clinic accepts Medicare, Medicaid, private insurance and self-pay patients. The third clinic has one physician and one family nurse practitioner with 8 exam rooms. The clinic has an in-

house lab and access to lab and radiology services of a community hospital. The clinic is open Monday through Friday and serves an average of 40 patients each day. Services include wellness checks and preventive, chronic, and acute care for patients of all age groups. The clinic accepts Medicare, Medicaid, private insurance and self-pay patients.

Population and Sample

The population for this research project was all patients (65 years or older) receiving care at the clinics mentioned above. This population was chosen based on CDC recommendations that adults 65 years and older are at great risk for complication of the influenza virus (CDC, 2012b). One hundred charts were reviewed from each of the three clinics for a total of 300 charts. Convenience sampling was used. The only qualifying factor was age 65 years and older.

Implementation of the Project

This quantitative, retrospective chart review involved no human participants. The researchers gained approval from the Institutional Review Board from Mississippi University for Women (see Appendix A). Following approval, written consent was obtained from each participating clinic by means of a formal letter of consent (see Appendix B). To ensure confidentiality, the following steps were taken:

1. Researchers adhered to HIPPA guidelines.
2. Numbers were used instead of names.
3. Random charts of those 65 years and older were pulled by office managers in order of medical record number.
4. Charts were reviewed in a private room away from clinic traffic.

One hundred charts from each clinic were reviewed using a data collection legend (see Appendix C) and data collection sheet (see Appendix D) approved by Mississippi

University for Women. Use of the data collection tools also provided consistency in research methods. These chart reviews were used to determine the frequency at which participants received the influenza vaccine and the frequency at which providers properly documented the influenza vaccine. Extraneous data provided useful information in understanding trends in the three clinics. Extraneous data included age, gender, race, and provider type. Data were saved on password-protected jump drives. Passwords were only known by the three researchers, and charts were immediately returned to the office manager. The researchers' jump drives were stored in a secure location and destroyed upon completion of research. Upon completion of the project, all physical data were destroyed immediately by appropriate means.

Data Analysis

A data collection legend and data collection sheet using *Yes* or *No* answers was used to identify participants who were given the influenza vaccine, use of flowsheet, age, gender, and provider type. Statistical Package for the Social Sciences (SPSS) data software was utilized to determine percentiles, frequencies, means, medians, and modes.

Summary

This research project addressed adherence to influenza vaccination by individuals 65 years and older. The project also addressed providers' documentation of influenza vaccination. Based on the research questions, the researchers conducted a retrospective review of 300 medical records at three primary care clinics in the southeastern United States. Charts were reviewed providing comparison of adherence to CDC guidelines for influenza vaccination of those 65 years and older (CDC, 2012b). Clinics and subjects used in this study remain anonymous. All data collected were compiled onto the data assessment worksheet and destroyed upon completion of the research project.

CHAPTER IV

Results

The influenza virus is responsible for numerous hospitalizations and deaths in the elderly population. The Centers for Disease Control and Prevention (CDC) recommends that any person greater than 6 months receive the influenza vaccine annually (2012b). The CDC identifies people greater than 65 years old as high risk for complications related to the influenza virus. Research demonstrates that receiving the influenza vaccination can protect patients from complications related to the influenza virus, such as hospitalizations and deaths (CDC, 2011a). A yearly influenza vaccination is recommended for patients considered high risk. The purpose of this research was to determine if patients 65 years and older received the influenza vaccine.

Participant Characteristics

Data were collected from the charts of 300 patients between the age of 65 and 100 years ($M = 75.09$, $SD = 8.05$). The medical charts were from three rural health clinics in the southeastern United States. Patients aged 65 years or older were chosen because the CDC identifies people greater than 65 years old as high risk for complications related to the influenza virus (CDC, 2011a).

Gender, ethnicity, and type of healthcare provider seen by the patients were also evaluated by the researchers. A total of 117 male and 183 female charts were reviewed. Race was evaluated with the following groups: Caucasian ($n = 197$), African American ($n = 99$), and Hispanic ($n = 4$). Type of provider seen was divided into the following groups: Patient seen by medical doctor ($n = 169$) and patients seen by nurse practitioner ($n = 131$). See Table 1 for a summary of patient demographics.

Table 1

Demographic Summary for all Patients

Demographics	*n*	%
Gender		
Male	117	39.00
Female	183	61.00
Ethnicity		
Caucasian	197	65.67
African American	99	33.00
Hispanic	4	1.33
Provider		
MD	169	56.33
NP	131	43.67

Note. $N = 300$.

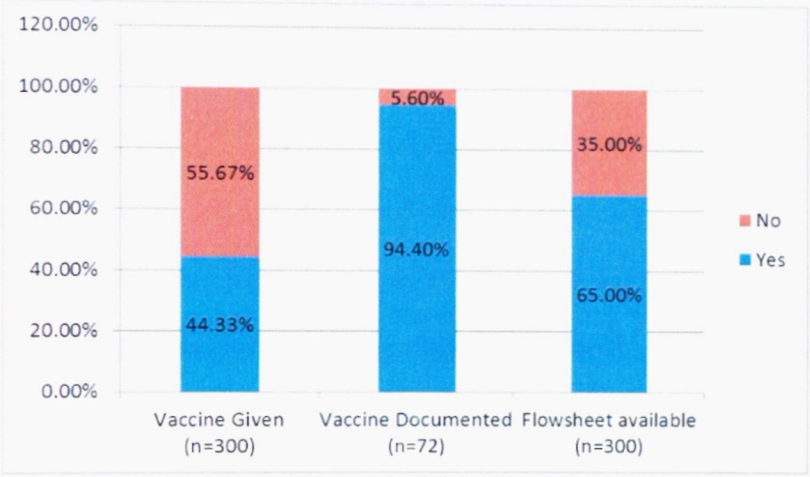
Findings

The CDC suggests that all patients aged 65 years or older receive the influenza vaccination. The current research evaluated whether the patient received the influenza vaccination, the presence or absence of a flowsheet to document vaccination, and the utilization of the flowsheet, if present, by the healthcare provider.

Research question 1. Did the patient receive the influenza vaccination? Of the patient charts reviewed, 44.33% ($n = 133$) received the influenza vaccination.

Research question 2. Does the medical record contain a flowsheet to document vaccination records? Flowsheet were found in 65% ($n = 195$) of the patient charts studied.

Research question 3. Does the healthcare provider utilize the flowsheet? Only patients who had received a vaccine and had a flowsheet available ($n = 72$) were considered for this analysis. The flowsheet documentation rate for the patients who received the influenza vaccine was 94.40% ($n = 72$)



Note. Documentation was only considered in the case where a vaccine was administered.

Figure 1. Prevalence of desired outcomes.

Additional Findings

There was no statistically significant difference in vaccination levels based on gender, $\chi^2(1, N = 300) = 0.043, p = 0.836$, with 43.59% of males and 44.81% of females receiving the influenza vaccination. The differences in vaccination administration based on ethnicity was statistically significant, $\chi^2(2, N = 300) = 9.171, p = .010$, with Hispanic patients having the highest vaccination rate (100.00%), followed by Caucasian (47.72%) and African American (35.35%) patients. Vaccination rates were also significantly different based on provider type, ($\chi^2(1, N = 300) = 12.228, p < .001$, with lower rates among MD providers (35.50%) compared to NP providers (55.73%).

There was no statistically significant difference in inclusion of flowsheet based on gender, $\chi^2(1, N = 300) = 1.010$, $p = .315$, with 61.54% of males and 67.21% of females charts containing the flowsheet. The differences in the inclusion of flowsheet based on ethnicity was statistically significant, $\chi^2(2, N = 300) = 8.717$, $p = .013$, with Hispanic patients having the lowest rate (0.00%), followed by African American (61.62%) and Caucasian (68.02%) patient charts. Inclusion rate of flowsheets was also significantly different based on provider type, $\chi^2(1, N = 300) = 181.164$, $p < .001$, with higher rates amongst MD providers (97.63%) compared to NP providers (22.90%).

The flowsheet documentation rate for the patients that received the influenza vaccine was 94.40% ($n = 72$). There was no significant difference in documentation rates based on gender, $\chi^2(1, N = 300) = 0.064$, $p = .801$, with 94.12% of males and 95.12% of female charts containing appropriate documentation as shown in Table 2. There was no statistically significant difference in documentation based on ethnicity, $\chi^2(2, N = 300) = 0.237$, though the small sample size made the calculation of a p value unreliable. Documentation rate was significantly different based on provider type, $\chi^2(1, N = 300) = 8.990$, $p = .003$, with lower rates among MD providers (88.33%) compared to NP providers (100%).

Table 2

Demographic Summary for Patients that Received the Influenza Vaccine

Demographics	*n*	%
Gender		
Male	51	38.35
Female	82	61.65
Ethnicity		
Caucasian	94	70.68
African American	35	26.32
Hispanic	4	3.01
Provider		
MD	60	45.11
NP	73	54.89

Note. $N = 300$.

Summary

The researchers discovered that only 133 patients of the 300 charts reviewed received the influenza vaccination. While the gender of the patient did not present a statistically significance in vaccination uptake, ethnicity appears to be a significant contributor to whether a patient receives the vaccination. Furthermore, the type of healthcare provider visited also appears to be significant to vaccination rates of patients and the documentation of vaccination. Actions should be taken to increase the percentage of vaccination uptake in the three rural health clinics in the southeastern

United States since the CDC aims for a 100% vaccination rate of higher risk groups, such as the sample of the current study.

CHAPTER V

Outcomes

Summary of the Investigation

The influenza virus is a respiratory illness that infects the nose, throat, and lungs. Illnesses can be mild to severe. Influenza is spread from droplets expressed from coughing, sneezing, and talking. The severity of the flu season is highly unpredictable and varies from year to year. Factors, such as the strain of influenza virus, the availability and amount of available flu vaccine, the adherence to vaccination, and the proper vaccine strain, play a role in decreasing the severity of the flu season. Presently, the influenza vaccine is the best step in preventing influenza. Antibodies are developed roughly 2 weeks post-vaccination. The seasonal flu vaccine will protect persons against the three strains researchers believe will be most common in a particular year (Centers for Disease Control and Prevention [CDC], 2013).

The influenza virus is responsible for hospitalizations and deaths in the elderly population. The CDC recommends that any person older than 6 months receive the influenza vaccine annually (2012b). Adults ages 65 years and older are at greater risk for complications from the influenza virus than young, healthy adults. The best known way of preventing contraction of the influenza virus is the influenza vaccine. Research suggests that receiving the influenza vaccination can protect patients from complications related to the influenza virus, such as hospitalizations and deaths (CDC, 2011a). The current study assessed whether individuals 65 years and older were receiving the influenza vaccine and whether providers were documenting influenza vaccination. The research was intended to enhance patient's influenza vaccination and the strength of the provider's documentation.

Interpretation of Findings

The researchers reviewed 300 medical records to assess whether patients 65 years and older were receiving influenza vaccination. The first research question in the study was to assess whether patients 65 years and older were receiving the influenza vaccination. Forty-four percent of patients 65 years and older received the influenza vaccination. This result shows that the majority of patients in this sample either did not receive or did not report having already received the influenza vaccination. In contrast, Lin et al. (2010) found that, of the 119,954 participants studied, 69.5% were vaccinated. This finding indicated the need for further patient education regarding the influenza vaccination in the area studied. Lin et al. (2010) did have a much larger sample size from many different areas of the United States than the current research study, which could explain the higher compliance rate. The second research question was to determine whether the patient's medical record contained a flowsheet to document vaccination records. Sixty-five percent of the patient charts reviewed contained a flowsheet. Importantly, one of the three clinics studied did not utilize a flowsheet. The clinic not utilizing a flowsheet documented influenza vaccination on a patient encounters area of the physical chart. The third research question in the study was to assess whether the healthcare provider utilized the flowsheet for documentation. Of those using flowsheets, only patients who received the influenza vaccination were analyzed. The documentation rate for this subset was 94.40%. This finding shows providers are compliant with flowsheet documentation. Zimmerman et al. (2009) found that vaccine uptake was likely to be greater when a standard of documentation was used.

A review of literature supported and provided outcomes for the current study. Hottes et al. (2011) and Nichol et al. (2007) validated the importance of influenza

vaccination of patients 65 years and older to prevent complications including hospital admission and mortality. Results of the current research found that the majority of patients 65 years and older failed to receive the influenza vaccination. This finding could be explained by small sample size. Also, it is possible that patients received vaccination at another location and it was never documented at the participating sites. Linn et al. (2010) found that Caucasians were more likely to get the influenza vaccine than other racial groups. Likewise, the current study found that Caucasians was the most compliant group, suggesting demographic variance in vaccination. Zimmerman et al. (2009) validated the importance of assessment tools in regard to higher vaccine uptake. The current study examined the use of a flowsheet to document vaccination. Although one clinic did not use a flowsheet, 94.40% of those using flowsheets properly documented vaccination on the flowsheet. This finding demonstrates provider compliance.

Implications

The influenza virus has been a cause of medical concern for several years. Influenza causes large number of deaths across the world annually. These deaths greatly affect subsets of the world population that are more vulnerable to the effects of the virus. The influenza virus is responsible for hospitalizations and deaths in the elderly population. The CDC recommends that any person greater than 6 months old receive the influenza vaccine annually (CDC, 2012b). The current research revealed a decreased rate of vaccination, thus emphasizing further education to patients 65 years and older. Providers could stress the importance of influenza vaccination during each patient visit. Also, utilization of a flowsheet would prompt providers to inquire and educate regarding vaccination.

The nursing theory used in this research was the Health Promotion Model by Dr. Nola J. Pender. The focus of this theory is both health promotion and disease prevention. Recommendations show that vaccinating patients at a high risk for complications from the influenza virus can prevent hospitalizations and decrease mortality rates (CDC, 2012b). The Health Promotion Model provided guidance throughout the current project to determine the practice of influenza vaccination in patients over 65 years of age. The current study found that the majority of patients 65 and older did not receive the influenza vaccine. This finding validates the need for more patient education, thus utilizing Pender's model. Linn et al. (2010) found that a direct relationship existed in education and vaccine uptake. Each increase in education levels was followed by an increase in the level of vaccination uptake. Likewise, Yoo et al. (2010) determined an increase in influenza vaccination among the elderly after media reports involving information on the influenza virus and vaccination were published.

Advanced practice nurses (APNs) play major roles in patient care, such as educator and advocate. The current research found patients of APNs to be more compliant (55.73%) with influenza vaccination compared to MDs (35.50%). Also, APNs documented vaccination (100%) compared to MDs (88.33%). APNs reward holistic care which could explain the findings in the current research.

Limitations of the Research Project

A limitation of this research project was the small sample size. The sample size involved 300 charts. The results of a small sample size may misrepresent the entire population. Another limitation was the locations of the three clinics used in the data collection. Three rural clinics located in the southern region of the United States were utilized in this research project. Only using a sample population from one small

geographic area of the United States could misrepresent the entire global population. Also, one clinic did not utilize flowsheets, which further decreased the sample size of the third research question.

Recommendations

The results of the current research were disclosed to the participating clinics in order to identify areas for improvement in influenza vaccine uptake for patients 65 years and older and utilization of assessment tools, such as a flowsheet, for vaccination documentation. The clinic not using flowsheets has now implemented and is using flowsheets in practice. Based on the outcomes, the following recommendations were made:

1. Replication of the study using a larger sample size.
2. Replication of the study using multiple clinical sites.
3. Evaluate other factors that may contribute to lack of influenza vaccination compliance such as lack of education and failed documentation.
4. Evaluation of assessment tools, such as flowsheets, for vaccination documentation after clinics go to electronic medical records in 2014.

Summary

The purpose of the current research was to determine whether individuals 65 years and older were receiving the influenza vaccine and whether providers were documenting vaccination. Results were shared with the participating clinics at the completion of the study to determine areas that could improve vaccination compliance such as flowsheets. The results of the current research reinforced the need for more patient education regarding influenza vaccination in patients 65 years and older. Providers have a vast responsibility to ensure the most appropriate outcomes for patients.

Influenza vaccination of the elderly has been shown to decrease complication of influenza such as hospitalization and mortality.

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APPENDIX A

Approval of Mississippi University for Women's Institutional Review Board

Mississippi University for Women
A Tradition of Excellence for Women and Men

Provost and Vice President for Academic Affairs
1100 College St MUW-1603
Columbus, MS 39701-5800
(662) 329-7142
(662) 329-7141 Fax

www.muw.edu

February 26, 2013

Teresa Hamill, Instructor of Nursing, MSN
Mississippi University for Women
College of Nursing and Speech-Language Pathology
MUW - 910
Columbus, Mississippi 39701-5800

Dear Ms. Hamill:

I am pleased to inform you that the members of the Institutional Review Board (IRB) have reviewed the following proposed research and have approved it as submitted:

Name of Study:	Influenza Vaccinations and Recommendations Among Patients Greater than 65 Years
Investigator(s):	Sarah Burwell, Meagan Chaney and Corey Shoemaker
Research Faculty/Advisor:	Teresa Hamill

I wish you much success in your research.

Sincerely,

Dan Heimmermann, Ph.D.
Provost and Vice President for Academic Affairs

DH/jh

pc: Tammie McCoy, Institutional Review Board Chairman

APPENDIX B

Letter of Consent

Date:

Clinic Name:

SUBJECT: Permission to Participate in a Research Project

Dear XXXX,

We are graduate students in the Family Nurse Practitioner Program at the Mississippi University for Women in Columbus, MS. We are currently enrolled in an advanced nursing research class that requires us to conduct a retrospective chart review. We are evaluating if influenza vaccination recommendations are being documented for patients who are 65 years old or older and if those patients are accepting the influenza vaccine. We will be assessing the chart documentations regarding the flu vaccination recommendation and administration of the flu vaccines by the healthcare providers to the patients. The students that are participating in this research project will include Sara Burwell, Meagan Chaney, and Corey Shoemaker.

Your participation in this research project will consist of allowing us the privilege of reviewing medical records of your clients 65 years old and older. As researchers, we understand the importance of maintaining confidentiality of all information collected from the medical records. We agree to abstain from discussing or disclosing any information regarding your clients. Each student will follow Human Insurance Portability and Accountability (HIPAA) compliance that governs your facility. The study includes a retrospective chart review and will not involve human participation throughout this project. The chart reviews will be recorded on a Data Collection Worksheet. The information will then be entered into a computer data sheet. The data sheet will be saved to a flash drive computer file only accessible by the researchers of this project. After completion of the research study, the information will be immediately deleted and destroyed. The results of the research may be published, but your name, the clinic, nor any of the patient information will be identifiable.

Your participation in the research project is strictly voluntary. The benefit of your contribution to our research project will serve as a quality assurance measure for your organization. The time necessary for us to collect data and review charts will be approximately one month. After the completion of our research project, we will provide you with the results from our study.

If you have any questions concerning this research project, please call Sara Burwell at (662) 769-1786, Meagan Chaney at (601) 513-2749, Corey Shoemaker at (601) 507-7885, or our clinical advisor, Ms. Terri Hamill, at (662) 329-7323. In addition, you may

withdraw your consent and participation in this study at any time by contacting one of us or the advisor of our research committee.

Sincerely,

Sara Burwell, SFNP

Meagan Chaney, SFNP

Corey Shoemaker, SFNP

****

I have read this letter of consent and have been given to opportunity to ask any questions.

I have given my consent to participate in the proposed research study above.

_____ _____

Clinic Manager Signature Date

APPENDIX C

Data Collection Legend

A. What was the gender of the patient?

1 = Male
2 = Female

B. What was the patient's age?

(Please insert age).

C. What was the patient's race?

1 = Caucasian
2 = African American
3 = Asian
4 = Hispanic
5 = Other

D. Provider?

1 = MD
2 = NP

E. Was the patient given the influenza vaccination?

1 = Yes
2 = No

F. Flowsheet available

1 = Yes
2 = No

G. Influenza Vaccine Documented?

1 = Yes
2 = No

APPENDIX D

Data Collection Form

Patient Number	Age	Gender	Race	Provider	Influenza vaccine given	Flowsheet available	Influenza vaccine documented